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DEPARTMENT OF THE ARMY  
OFFICE OF THE ADJUTANT GENERAL  
WASHINGTON, D.C. 20310

IN REPLY REFER TO

AGAM-P (M) (24 Apr 68) FOR OT RD 681273

3 May 1968

SUBJECT: Operational Report - Lessons Learned, Headquarters, 1st  
Battalion, 40th Artillery, Period Ending 31 January 1968 (U)

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1. Subject report is forwarded for review and evaluation in accordance with paragraph 5b, AR 525-15. Evaluations and corrective actions should be reported to ACSFOR OT RD, Operational Reports Branch, within 90 days of receipt of covering letter.

2. Information contained in this report is provided to insure appropriate benefits in the future from lessons learned during current operations and may be adapted for use in developing training material.

BY ORDER OF THE SECRETARY OF THE ARMY:

*Kenneth G. Wickham*

KENNETH G. WICKHAM  
Major General, USA  
The Adjutant General

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DEPARTMENT OF THE ARMY  
HEADQUARTERS 1ST BATTALION 40TH ARTILLERY  
APO San Francisco 96269

AVGLA-C

15 February 1968

SUBJECT: Operational Report for Quarterly Period Ending 31 January  
1968 (RCS CSFOR-65)(U)

TO: See Distribution

## Section 1. (C) Significant Unit Activities (U)

### 1. (C) General

a. The battalion continued under the operational control (OPCON) of the 12th Marine Regiment of the 3d Marine Division, III Marine Amphibious Force until 1 December 1967 when OPCON passed to 108th Artillery Group, and the battalion's mission became General Support of the 3d Marine Division, Reinforcing fires of the 12th Marine Regiment, on order Direct Support to designated United States Marine Corps or Army of the Republic of Vietnam elements. For most of the period, one platoon from each of the firing batteries remained in the base camp in DONG HA COMBAT BASE (YD 236599). On 17 January 1968 Battery B, in its entirety, returned to base camp and the platoons from the other two firing batteries left the base camp to join their respective batteries. One firing battery is habitually at THON SON LAM (XD 982542) with the mission of Direct Support of the infantry battalion with which it is colocated. Until 17 January 1968, when the commitment was ended, one firing battery (-) was habitually at the GIO LINH outpost (YD 213742) with the mission of General Support of 3d Marine Division under OPCON of the Composite Artillery Battalion at that location. Beginning 16 November 1967, one firing battery has been near TRUC SON at YD 215673 with the mission of Direct Support of 2d ARVN Regiment, with OPCON retained by 1st Battalion, 40th Artillery. Elements located at the base camp have had the mission of General Support of 3d Marine Division and since 1 December 1967 General Support of 3d Marine Division Reinforcing fires of 12th Regiment. The battalion has fired in support of the 3d, 9th, and 4th Marine Regiments, and the 3d Force Reconnaissance and 3d Reconnaissance Battalion of the 3d Marine Division, the 1st Amphibious Tractor Battalion, a Task Force of the 5th Airborne Regiment 1st Airborne Division (ARVN), the 2d Regiment (ARVN), the US Advisory Team at CAM LO and numerous resupply convoys.

b. Increasingly large numbers of North Vietnamese Army (regular) troops are being located in QUANG TRI Province and the Demilitarized Zone. Viet Cong activities have also continued. Enemy

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activity increased drastically during the last few days of the reporting period with heavy mining of roads, ambush activity, and many rocket and artillery attacks on all firing battery positions except that at THON SON LAM. The US Marines continue to mount operations of up to multi-battalion size, and ARVN forces have been aggressively conducting operations within their areas of operation. Forward observers from the battalion have accompanied infantry units during the conduct of many of these operations, but battalion air observers have not flown during the period, due to sufficient US Marine observers to utilize available aircraft time.

c. On 14 December 1967 the Battalion Commander fired a round from the base piece of Battery A located at THON SON LAM. This was a ceremony to commemorate the firing of the one-third millionth round by the battalion since its arrival in RVN on 26 October 1966. By 31 January 1968 the battalion had fired 390,852 rounds in the Republic of Vietnam.

d. Heavy emphasis has been placed on construction of personnel shelters and improved troop billets, with tin roofs and weather proof siding to withstand the monsoon season. Construction of all messes and supply rooms was completed and some dayrooms have been built. Recently, batteries began improvement of secondary defensive positions between existing perimeter bunkers.

e. Frequent visits by the S-3 and command inspections and visits by the Battalion Commander continue to insure a high state of unit readiness and adherence to overall doctrinal guidance provided by DA field and technical manuals, with particular emphasis on the gunnery techniques outlined in FM 6-40.

f. The battalion continues to use the high burst method of registration exclusively. This technique is used in conjunction with the AN/MPQ-4A Counter Mortar Radar where satisfactory observation posts are not available or when survey parties are otherwise occupied. Registrations are conducted concurrently with meteorological soundings, and subsequent metro messages, received three times daily, are used for computing current met plus VE GFT settings. To check the accuracy of these settings, the Counter Mortar Radar is used to spot rounds fired during the H&I program.

## 2. (U) Intelligence

a. The following clearances and validations were accomplished during the reporting period:

Secret Crypto authorized - 5  
Secret Clearances granted - 10  
Secret Clearances validated - 43  
Confidential Clearances granted - 2

b. A complete inventory of the battalion's basic load of maps was made and necessary map sheets were requisitioned to fill all shortages. The new series of maps is being received, correcting

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many of the inaccuracies in previous series.

## 3. (C) Operations and Training Activities

### a. Plans. Current plans for the battalion are:

- (1) To provide artillery support in defense of the DONG HA COMBAT BASE.
- (2) To be prepared to move firing batteries to any location in QUANG TRI Province, to provide artillery fire support.
- (3) To provide one firing battery in Direct Support of the 2d Regiment (ARVN) from the TRUC SON position for an indefinite period.
- (4) To provide one firing battery in Direct Support of the infantry battalion located at THON SON LAM.
- (5) To conduct training as outlined by USARV training directives, to include battalion-level incoming personnel training, and conduct sufficient section training to insure that all units and individuals are capable of performing their missions.
- (6) To continue camp construction with heavy emphasis on troop comfort and morale facilities.

(7) To maintain administrative control of 235th, 238th, 239th, 240th, 245th, and 250th Artillery Detachments (Radar), which provide counter mortar surveillance for the 12th Marine Regiment at DONG HA and the GIO LINH outpost; 1st Battalion, 13th Marines at KHE SANH (XD 843419); 1st Battalion, 12th Marines at CAMP J.J. CARROLL (YD 069555); 3d Battalion, 12th Marines near QUANG TRI (YD 303557), and the 2d Battalion, 12th Marines near X. TOT BONG (YD 134646).

### b. Operations

(1) The battalion has continued Direct, Reinforcing, and General artillery support. It has participated in operations Lancaster I, Lancaster II, Highrise, Kentucky, Osceola I, Osceola II, LAM SON 149, 156, 160, 165, and 181, Napoleon, Ballistic Arch, Kingfisher, and Salena.

(2) Battalion Headquarters, Headquarters Battery and Service Battery have remained in the battalion base camp at the DONG HA COMBAT BASE. The firing batteries have all spent time at GIO LINH and the battalion base camp while two have been to THON SON LAM and another has occupied the new position near TRUC SON.

(3) Battery A began the reporting period in the DONG HA COMBAT BASE with the mission of General Support of the 3d Marine Division under OPCON of 1st Battalion, 40th Artillery. The battery displaced four howitzers to GIO LINH on 3 November 1967, and the mission remained General Support of 3d Marine Division with OPCON transferred to the

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Composite Artillery Battalion, 12th Marine Regiment. On 9 December the battery moved to THON SON LAM with four howitzers, and assumed the mission of Direct Support of the 3d Battalion, 9th Marines under OFCON of 1st Battalion, 12th Marines. The remaining two howitzers were in firing position at the base camp at DONG HA COMBAT BASE under OFCON of 1st Battalion, 40th Artillery. At THON SON LAM the battery fired in support of Operations Lancaster I and II. On 18 January 1968 a fifth howitzer was moved to THON SON LAM. At the end of the reporting period Battery A had five howitzers at THON SON LAM and one howitzer in firing position at base camp in the DONG HA COMBAT BASE.

(4) Battery B began the reporting period with four howitzers at THON SON LAM with the mission of Direct Support 3d Battalion, 9th Marines under OFCON of 1st Battalion, 12th Marines, and two howitzers at the base camp in DONG HA COMBAT BASE as General Support 3d Marine Division under OFCON 1st Battalion, 40th Artillery. On 8 December the two howitzers at the base camp and a jump FDC displaced to GIO LINH. On 9 December the remainder of the battery displaced from THON SON LAM and 3 howitzers moved to GIO LINH with the mission of General Support of 3d Marine Division under OFCON of the Composite Artillery Battalion, 12th Marine Regiment. One howitzer remained in the base camp at the DONG HA COMBAT BASE. On 17 January 1968 the battery displaced to the base camp at the DONG HA COMBAT BASE where they remained until the end of the period. Their mission is General Support of 3d Marine Division, Reinforcing 12th Marine Regiment, with OFCON exercised by 1st Battalion, 40th Artillery.

(5) Battery C began the reporting period with 5 howitzers at GIO LINH in General Support of the 3d Marine Division under OFCON of the Composite Artillery Battalion, 12th Marine Regiment and with one howitzer at the base camp in the DONG HA COMBAT BASE under OFCON 1st Battalion, 40th Artillery. On 3 November 1967 Battery C displaced to the base camp firing position with a mission of Direct Support to Task Force I, 5th Airborne Regiment, 1st ARVN Airborne Division under OFCON of the 1st Battalion, 40th Artillery. On 16 November Battery C moved four howitzers to the TRUC SON firing position with the mission of Direct Support of the 2d ARVN Regiment with OFCON retained by the 1st Battalion, 40th Artillery. Two howitzers remained in DONG HA COMBAT BASE and, together with a platoon from each of the other two firing batteries, had the mission of General Support of the 3d Marine Division, Reinforcing the 12th Marine Regiment under OFCON of the 1st Battalion, 40th Artillery. On 19 January 1968 Battery C displaced the platoon at base camp to TRUC SON. The battery remained at this position at the end of the reporting period.

(6) The types of missions fired have remained the same as previously reported. Since terminating the GIO LINH commitment, the battery at TRUC SON has been receiving the most lucrative targets and the best surveillance of target effects. It has fired in close support of joint US Marine and ARVN operations, as well as operations conducted solely by ARVN units. On 17 January 1968 Battery C fired on NVA in the open and was credited with 10 confirmed enemy KIA. On 20 and 21 January 1968 that battery firing in support of an ARVN operation was credited with 107 confirmed enemy KIA in two days. Battery C also

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fired in support of the Composite Artillery Battalion, 12th Marine Regiment at GIO LINH, and for a forward observer furnished by 1st Battalion, 40th Artillery to the 2d ARVN Regiment at an outpost at NHI THUONG (YD 269734).

(7) The firing battery at THON SON LAM continued to have the fewest significant missions, firing mostly on suspected enemy positions with little or no surveillance. Increased enemy activity in the DONG HA area has resulted in more lucrative targets for the elements in base camp. Heavy reconnaissance activity by 3d Force Recon teams and 3d Recon Battalion, 3d Marine Division has also developed targets to be fired on from base camp. Every opportunity has been seized for massing the fires of the battery at TRUC SON and base camp firing elements on important targets that fall within their overlapping range capabilities.

(8) At the close of the period the 3d Force Reconnaissance at their DONG HA base camp again requested classes in artillery effects and adjustment. These classes have become necessary due to turnover in reconnaissance personnel. This battalion will plan to maintain close coordination with reconnaissance units to insure that the capabilities of the artillery are fully realized in support of their teams.

(9) The deployment of Counter Mortar Radar Detachments, which are attached to this battalion, changed from that previously reported.

(a) The 235th Artillery Detachment moved from GIO LINH to the DONG HA COMBAT BASE on 27 November 1967. It was employed in a General Support role to the 3d Marine Division, under OPCON of the 12th Marine Regiment.

(b) The 238th Artillery Detachment was moved from X. TOT BONG on 28 November 1967 to the DONG HA COMBAT BASE for direct and general support maintenance. On 29 December the 238th Detachment was moved near TRUC SON under OPCON of the 12th Marine Regiment, 3d Marine Division. On 22 January 1968 the detachment was displaced by helicopter to KHE SANH (XD 84494194) and only one hour after landing was operational under the OPCON of 1st Battalion, 13th Marines (DS to 26th Marine Regiment, 3d Marine Division) and located 6 enemy rocket positions on 24 and 25 January.

(c) The 239th Artillery Detachment arrived at DONG HA COMBAT BASE on 26 November 1967 from QUI NHON. On 30 November the 239th was moved to CAMP J.J. CARROLL (YD 06485548) under OPCON of 1st Battalion, 12th Marines (DS to 4th Marine Regiment, 3d Marine Division).

(d) The 240th Artillery Detachment arrived at DONG HA on 26 November 1967 from QUI NHON and was placed under OPCON of the 1st Battalion, 40th Artillery at the DONG HA COMBAT BASE. On 17 December the detachment was moved to QUANG TRI (YD 333503) under OPCON of the 1st Battalion, 11th Marines, 1st Marine Division. During this period the 1st Battalion, 11th Marines was replaced by the 3d Battalion

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12th Marine Regiment, 3d Marine Division and OPCON passed to the new battalion. On 25 January 1968 the 240th, along with the 3d Battalion, 12th Marines, moved to a position near the Marine Air Base north of QUANG TRI (YD 303557) as Direct Support to the 3d Marine Regiment with OPCON unchanged.

(e) The 245th Artillery Detachment arrived at DONG HA COMBAT BASE from BIEN HOA on 22 November 1967. It was displaced to the X. TOT BONG position (YD 134646) on 28 November and is under OPCON of the 2d Battalion, 12th Marine Regiment, 3d Marine Division furnishing Direct Support to the 9th Marine Regiment.

(f) The 250th Artillery Detachment arrived at DONG HA COMBAT BASE from the 1st Infantry Division on 22 November 1967. It was deployed to GIO LINH on 27 November and is under the OPCON of the Composite Artillery Battalion, 12th Marine Regiment, 3d Marine Division with a mission of General Support of 3d Marine Division.

(10) The battalion survey section has established control for the radar detachments at TRUC SON and at GIO LINH. A declination station was established for Battery C at TRUC SON. A route survey, in support of the 2d Battalion, 12th Marines, was undertaken along the highway between CAM LO HILL (YD 148614) and CON THIEN (YD 116701) due to fire support difficulties caused by suspected inaccuracy of the map location of the highway. This survey has not been completed due to increased enemy activity in the area.

(11) As of 31 January 1968 the battalion was credited with 802 confirmed and 996 probable enemy KIA since beginning operations in RVN on 27 October 1966.

## c. Training

(1) Training is conducted on a daily basis, with emphasis on on-the-job training by all sections.

(2) Familiarization firing of all types of small arms takes place on a monthly basis.

(3) Toward the end of the period planning and preparation was accomplished to consolidate incoming personnel training at battalion level, to provide for more uniform instruction and to allow new personnel to join their forward units already trained in basic skills and familiarized with all weapons.

(4) All personnel receive periodic refresher training on perimeter defense procedures and the emplacement of claymore mines, trip flares, and barbed wire.

d. Chemical. The battalion chemical noncommissioned officer continues to inspect CBR protective equipment and teach classes concerning operation in a CBR environment. Enemy use of riot control agents has been reported in scattered incidents, and the vulnerability of all positions to enemy rocket and artillery fire requires the

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constant presence of operational protective masks.

e. Organization. During the reporting period, the 239th, 240th, 245th, and 250th Artillery Detachments (Radar) arrived in this area and were attached to the battalion. No other units were assigned to or under OPCON of the battalion during this quarter.

## 4. (C) Logistics

a. Some new problems in logistical support have arisen during the quarter and some old ones are continuing.

b. A direct exchange facility for repair parts at TASK FORCE SLAWSON (a forward element of the 1st Logistical Command) has been of some help, but is hampered by a shortage of many needed items (e.g., water pumps, wheel and master cylinders, brake shoes, storage batteries).

c. The general shortage of repair parts continues to hamper the maintenance program. Zero balance of tank-automotive PLL has fluctuated between 28 and 30 percent during the past quarter.

d. The number of unfilled requisitions submitted for mission essential equipment continues to increase. Equipment such as radio transmitter RT-524; Carrier, Command M577A1; Truck  $\frac{1}{2}$  ton M151; Truck 5 ton M54A2; and Carrier, Cargo M548 has been on requisition from 82 to 255 days. Supply data for the most critical shortages are:

<u>NOUN/MODEL</u> <u>FSN</u>	<u>DATE BN REQ</u> <u>FOR ISSUE</u>	<u>PRIORITY</u>	<u>QTY</u>	<u>MILSTRIP NUMBER</u>
RCVR/XMTR/RT-524 5820-892-0622	10 Jun 67	02	3ea	AT8101-7167-5023
RADIO/AN/VRC-46 5820-892-0871	11 Nov 67	02	1ea	AT8101-7329-1715
RCVR/XMTR/RT-524 5820-892-0622	27 May 67	See note	3ea	AT8101-7156-0005
CARRIER/COMMAND/ M577A1 2320-056-6808	18 Oct 67	02	1ea	AT8101-7311-1710
TRUCK/CARGO/5TON/ M54A2 2310-055-9266	10 Sep 67	02	1ea	AT8101-7252-2950

NOTE: Priority 12 assigned 27 May 67; priority upgraded to 02 on 1 Jan 68.

e. Replies by Army Tank-Automotive Command to equipment improvement recommendations (EIR) submitted during the previous reporting period have solved some of the problems causing rapid wear of howitzer breech and firing mechanism parts. The lack of howitzer cannon assemblies at TASK FORCE SLAWSON resulted in a howitzer being non-operational for the last 8 days of the reporting period; however, the maintenance

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float of the TASK FORCE was issued to the battalion to keep firing capability at 18 operational howitzers.

f. Only one of the six radar detachments has both of the USARV authorized Generator Sets FU 107 A/U. The lack of the second generator has increased the maintenance problems of the remaining generators. Of the seven generators brought to RVN with the radar detachments, four have been turned in to support maintenance. Float generators have been obtained, however the generators continue to break down despite frequent and careful maintenance. A separate request for assistance has been submitted concerning this problem.

g. A delay of up to 30 days has been experienced by the battalion between the time the shipping notification (DD Form 1348) is received and the arrival of the item shipped from DA NANG. There have been several instances of apparent pilferage of shipments, and there have been 10 items shipped from DA NANG Sub Area Command during the reporting period which were not received by the battalion.

h. During the monsoon season it has been determined that the Carrier, Cargo M548 is the most dependable means of ammunition delivery to the batteries away from base camp. Wheeled vehicles are immobilized and easily damaged in the deep mud encountered within position areas during the monsoon season.

i. Tire damage on the Truck, 5 ton M54A2 has been substantially decreased during the reporting period by reducing the tire pressure from 70 lbs to 50 lbs. Prior to this action the battalion ammunition section was experiencing eight to nine flats per day. The section is now experiencing only 2 to 3 flat tires per day.

5. (U) Communication. For field wire installations, best results have been obtained with plastic-coated multi-pair cables. Standard field wire WD-1/TT has proved superior to rubber-coated multi-pair cables. The life of the rubber has been very short in this climate: less than a month when buried. For best results all cable should be placed overhead for easy maintenance and longer cable life.

6. (U) Civil Affairs. The battalion's continuing civil affairs program at DONG HA HAMLET (YD 223610) has made steady progress in gaining the trust and gratitude of the hamlet residents. Approximately 1,000 patients were seen by the battalion surgeon, including several "inpatients" who were visited on a daily basis at the primitive dispensary in DONG HA VILLAGE (YD 224611). One critically ill child (malnutrition, heart failure, intestinal parasites, and multiple infections) was evacuated to the hospital ship REPOSE and subsequently returned to the hamlet dramatically recovered. Candy, toys, and clothing were given to the hamlet chief to be distributed to children during the Lunar New Year Celebration (TET). Future plans call for an immunization program, establishment of a permanent dispensary to be staffed by Vietnamese nurses under initial supervision of American doctors, preventive medicine classes, and improvement of the local school building.

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## 7. (C) Personnel

a. The battalion suffered only five casualties during this reporting period. All casualties were a direct result of enemy action. They included one WIA serious enough to require hospitalization, and four WIA that were treated locally and returned to duty.

b. The problem noted during the previous reporting period of a lack of Turret Artillery Mechanics, MOSC 45G20, has been solved by the arrival of new personnel with MOS codes in the same career field who have been retrained as Turret Artillery Mechanics..

8. (U) Artillery. The battalion is equipped with the M108 Self Propelled 105mm howitzer. The M577A1 Command Post Vehicle is authorized for the FDC of each of the firing batteries with two for the Operations/FDC/Intelligence complex at battalion headquarters. Each battery FDC and battalion FDC is equipped with one Gun Direction Computer M18 and two generators for the computer. The armor protection afforded by both the M108 and the M577A1 continues to be of great value in this area where enemy artillery, mortar, and rocket attacks are frequent. The rapid traverse and high rate of fire of the M108 have been invaluable in close-in emergency defense of surrounded friendly forces. The Gun Direction Computers have proved a definite asset in delivering accurate initial volleys on a variety of targets.

9. (U) Other. During the reporting period (92 days) the battalion trained on 92 days, displaced on 8 days, and performed tactical combat operations on 92 days.

### Section 2. (U) Commander's Observations and Recommendations Part I. Observations (Lessons Learned)

1. (U) Personnel: None

2. (U) Operations:

a. Item: Target altitude must be other than zero when using the Gun Direction Computer M18 (FADAC).

Discussion: In coastal areas, a zero target altitude is often encountered. However, FADAC will compute for a target altitude equal to battery altitude if target altitude of zero is entered.

Observation: When using FADAC with current programs, an altitude of 1 meter should be entered for targets determined to be at zero altitude. Subsequent revisions of computer programs should correct this deficiency.

b. Item: Manual check and backup when using FADAC.

Discussion: All initial data produced by FADAC are checked by using charts and current manually computed met plus VE GFT settings, which are computed for sectors based on the four cardinal directions. The computer's record, DA Form 6-16, is used to record all chart data, deflection correction, manually computed site and GFT elevation as well as the FADAC data fired. After the initial data are checked, a clean

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GFT is used to obtain a "mission" or FADAC GFT setting. The cursor hairline is placed over the chart range to the target, and an elevation gauge line, obtained by subtracting the manually computed site from the FADAC quadrant elevation, is drawn on the GFT. The correction (with sign) which must be applied to the chart deflection to obtain the FADAC deflection for the initial data is written on the GFT cursor. This "mission" GFT is used to check subsequent data and is available to complete the mission if the FADAC would cease to operate during the mission. A new "mission" GFT setting is obtained for each target.

Observation: By recording manually computed data and using a "mission" GFT setting all firing data are checked in the FDC, and the mission can be continued without undue delay or inaccuracy should the FADAC cease operation during a mission.

c. Item: The same altitude must be determined by each FDC utilizing FADAC if data are to check prior to firing.

Discussion: When two (or more) Fire Direction Centers select altitude from the "site map" it is easy to not select the same altitude when using six-place coordinates. If different altitudes are inserted to the computers, resulting quadrant elevations will differ. The determination of why data will not check prior to firing results in unnecessary delay.

Observation: The Fire Direction Officer of the headquarters issuing the Fire Order should include altitude in the Fire Order. A logical place for this to be announced is prior to the target number in the Fire Order, and the Fire Order is announced to all batteries.

d. Item: A greater number of rounds can be fired through each cannon if a propellant charge other than 7 is used, since charge 7 E.F.C. value = 1.0 while charge 6 E.F.C. value = 0.25.

Discussion: The Gun Direction Computer M18 will normally select charge 7 when range to target is approximately 7,000 meters. Using charge 6 for targets at ranges between 7,000 and 9,000 meters will result in range probable errors varying from 11 to 15 meters, while charge 7 range probable errors will vary from 13 to 15 meters. Elevation values on the graphical firing table do not become difficult to interpolate until elevation 700 (which would correspond to a GFT cursor hairline range of 9,530 meters) and thus a manual backup to the computer is quickly available. Realizing that within the range span of consideration four rounds may be fired using charge 6 for each round fired using charge 7, the Fire Direction Officer (FDO) should normally override the computer's selection of charge 7 in order to prolong tube life in an environment where supply and transportation problems are enormous.

Observation: At ranges between 7,000 and 9,000 meters the FDO should order an override of charge 7 selection by the Gun Direction Computer M18 if the mission can be adequately accomplished using

charge 6. The FDO who controls the mission must announce the charge he selects if he desires to override the FADAC selection.

e. Item: Use of AN/MPQ-4A Counter Mortar Radar

Discussion: The radar sets have proved to be reliable under the difficult combat conditions encountered here. Radar has detected the approximate location of artillery targets out to 12,000 meters, by extending the trajectory backward in a straight line from its crossing points of the two beams. When used to detect enemy mortars the radar has proved so highly effective that the enemy has adopted a technique of firing only 5 to 10 rounds from a position and then moving immediately. The only acquisition problem has been due to the narrow beam width and the possibility of mortar attack from all sides. The radar has been extensively used to register friendly artillery, of all calibers, using high burst or center of impact techniques. This is an important capability in an area where target area survey is almost non-existent. It has been found that the radar will function satisfactorily even with shell fragment damage to the reflector. One set continued to function with approximately thirty holes in the reflector. Another reflector had a large hole approximately ten by three inches which had no effect on the performance of the radar. The major problem with the system has been the inability of one generator set PU 107 A/U to function satisfactorily for the long periods of operation required by the tactical situation.

Observation: The Counter Mortar Radar AN/MPQ-4A has proved to be of great value in locating enemy mortar and artillery positions and in registering friendly artillery.

3. (U) Training and Organization

Item: Consolidation of required incoming personnel training at the highest level feasible.

Discussion: Battalion level instruction for incoming personnel before the personnel are allowed to leave the base camp area for their forward positions accomplishes several important objectives. The quality of instruction can be monitored and improved by the S-3. Individuals are of immediate use to their units when they arrive, and batteries are relieved of this training task. Less time is lost because classes can be presented once for a relatively large group, rather than several times for a few individuals in each battery.

Observation: Incoming personnel training should be conducted at the highest level feasible.

4. (U) Intelligence: None

5. (U) Logistics

a. Item: Reducing tire damage on Truck, 5 ton, M54A2.

Discussion: Tire damage to trucks of the battalion ammunition



section has been decreased from an average of eight or nine flats per day to only two or three flats per day by reducing tire pressure from 70 lbs to 50 lbs.

Observation: Tire damage on the Truck, 5 ton, M54A2 can be decreased by reducing tire pressure from 70 lbs to 50 lbs.

b. Item: Need for two PU 107 A/U generator sets for each Counter Mortar Radar Detachment.

Discussion: Experience with five radar detachments with only one PU 107 A/U generator set has proved that the 24-hour requirement for counter mortar radar coverage creates an overload on the generator.

Observation: Two PU 107 A/U generator sets are needed for use with the Counter Mortar Radar, AN/MPQ-4A.

6. (U) Other

Item: Best type of field wire installations.

Discussion: Best results have been obtained using overhead installation due to ease of maintenance and increased line life. The best type of wire has proved to be plastic-coated multi-pair cable, however standard field wire WD-1/TT has proved superior to rubber-coated multi-pair cables.

Part II. Recommendations

1. (U) Personnel: None

2. (U) Operations. It is recommended that:

a. A program be developed for the Gun Direction Computer M18 that will result in a correct solution to the gunnery problem when a target altitude of zero is entered. As an interim measure, that target altitude of 1 meter be entered for targets with an altitude of zero.

b. USAAMC, Fort Sill, Oklahoma develop and announce standard procedures for manually checking computations of the Gun Direction Computer M18 and for insuring rapid manual assumption of a fire mission in the event of computer or generator failure.

c. When two artillery units employ the Gun Direction Computer M18, and check data prior to firing, the Fire Direction Officer controlling the mission announce the altitude selected for the target prior to the target number in the Fire Order.

d. The Fire Direction Officer of the headquarters controlling a mission, when using the Gun Direction Computer M18, carefully analyze all aspects of the mission before making a decision to accept or override the selection by the computer of the charge to be fired. Further, that if the Fire Direction Officer makes the decision to

override the selection by the computer of the charge to be fired, the charge selected must be announced in the Fire Order and passed to all other batteries employing Gun Direction Computers M18.

e. All authorization documents be changed to indicate that two Generator Sets, PU 107 A/U are to be issued in conjunction with each Counter Mortar Radar, AN/MPQ-44.

f. Incoming personnel training necessary to prepare troops for a specific area of operation should be conducted at the highest command level feasible within that area of operation.

3. (U) Other. It is recommended that:

a. USATAC, Warren, Michigan determine if tire damage is decreased by the reduction of tire pressure from 70 lbs to 50 lbs for the Truck, 5 ton, M54A2.

b. Units not attempt semi-permanent installation of communication circuits with rubber covered multi-pair cable, but rather that they employ standard field wire WD-1/TT or plastic coated multi-pair cable.

DISTRIBUTION:

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LEE R. ROPER  
LTC, Arty  
Commanding

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CONFIDENTIAL

AVGL-00 (15 Feb 68) 1st Ind  
SUBJECT: Operational Report for Quarterly Period Ending 31 January 1968  
(RCS CSFOR-65) Unit Identification Code: WDSFTO (U)

HQ, 108TH ARTILLERY GROUP, APO San Francisco 96269 23 Feb 68

TO: Commanding General, United States Army Vietnam, APO 96375  
ATTN: AVHGC-DH

1. Forwarded herewith is the Operational Report of the 1st Battalion (105mm) (SP), 40th Artillery for the quarterly period ending 31 January 1968.
2. Concur in the recommendations made in Section II of the report, subject to the following comment:

Part II of Section II, paragraph 2e (Generator Sets). Action has been taken to procure the second generator for each of the six radar detachments, (Letter, 1st Battalion, 40th Artillery, dated 12 Feb 68, with 1st indorsement, this headquarters, dated 16 February 1968, subject, Request for Assistance, and message, this headquarters, C1448, dated 13 Feb 68, subject Radar Generators).

*David L. Jones*  
DAVID L. JONES  
Colonel, Artillery  
Commanding

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CONFIDENTIAL

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AVHGC-DST (15 Feb 68) 2d Ind (U)  
SUBJECT: Operational Report for Quarterly Period Ending 31 January  
1968 (RCS CSFOR-65) (U)

HEADQUARTERS, US ARMY VIETNAM, APO San Francisco 96375 8 MAR 1968

TO: Commander in Chief, United States Army, Pacific, ATTN: GPDP-DT,  
APO 96558

1. This headquarters has reviewed the Operational Report-Lessons Learned for the quarterly period ending 31 January 1968 from Headquarters, 1st Battalion, 40th Artillery (DFSAs) as indorsed.

2. Pertinent comments follow:

a. Reference item concerning target altitude, page 9, paragraph 2a, and page 12, paragraph 2a: Nonconcur. The FADAC solution of the FDC gunnery problem is based on testing the trajectory of the projectile at predesignated intervals. During each test predetermined questions are asked of the computer memory to detect the exact impact of the projectile. As soon as the computer detects that the projectile is on the downward leg of its trajectory, the computer asks at the end of each integration: Has the projectile reached a point below the desired burst altitude? Therefore, to compute to a zero target altitude the computer must have at least one meter placed in the memory in order to complete its computations.

b. Reference item concerning a greater number of rounds fired through each cannon, page 10, paragraph 2d; and page 12, paragraph 2d. The FADAC is designed to provide the most accurate firing data computable and will normally provide data that will result in efficient attack of the target with the desired results. The decision to override the charge selected by FADAC must be carefully analyzed dependent upon the circumstances of each situation.

c. Reference item concerning consolidation of training at the highest level, page 11, paragraph 3; and page 13, paragraph 2f: Nonconcur. USARV Regulation 350-1, paragraph 4d, states as a matter of policy that training will be conducted at the lowest element that has the ability to conduct training. Conducting replacement training at battalion level, however, is considered acceptable.

AVHGC-DST (15 Feb 68)

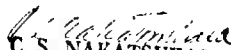
SUBJECT: Operational Report for Quarterly Period Ending 31 January  
1968 (RCS CSFOR-65) (U)

d. Reference item concerning reducing tire damage on truck, 5 ton, M54A2, page 11, paragraph 5a; and page 13, paragraph 3a: Concur that USATAC should determine if reduction of tire pressure will damage the tire or cause other ill effects. Pending such determination, recommend that no further publicity of this subject be made.

e. Reference item concerning best type of field wire installations, page 12, paragraph 6; and page 13, paragraph 3b: Concur. This method provides rapid installation, ease of maintenance, and in the case of rubber covered cable, longer life than that of buried cable. Inasmuch as availability of plastic covered cables is influenced directly by MTOE authorization, all artillery units desiring use of this type cable should initiate MTOE modifications where required for the desired types. For temporary installations, the use of field wire, WD-1/TT, and rubber covered cable is satisfactory.

3. A copy of this indorsement will be furnished to the reporting unit through channels.

FOR THE COMMANDER:

  
C. S. NAKATSUKASA  
Captain, AGC  
Assistant Adjutant General

Copy furnished:

HQ 1st Bn, 40th Arty

HQ 108th Arty Gp


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GPOP-DT (15 Feb 68) 3d Ind (U)  
SUBJECT: Operational Report of HQ, 1st Bn, 40th Arty,  
for Period Ending 31 Jan 68, RCS CSFOR-65 (R1)

HQ, US Army, Pacific, APO San Francisco 96558 9 APR 1968

TO: Assistant Chief of Staff for Force Development,  
Department of the Army, Washington, D.C. 20310

1. This headquarters has evaluated subject report and forwarding indorsements and concurs in the report as indorsed.
2. Reference paragraph 2d, 2d Indorsement, this matter is being handled between USARPAC and USAMC by separate action.

FOR THE COMMANDER IN CHIEF:

  
K. F. OSBOURN  
MAJ, AGC  
Asst AG

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Security Classification

## DOCUMENT CONTROL DATA - R &amp; D

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